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Detection of *A. alternata* from pear juice using surface-enhanced Raman spectroscopy based silver nanodots array

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Abstract: In this work, a rapid and accurate surface-enhanced Raman spectroscopy (SERS) based on silver nanodots (AgNDs) array substrate method was used to detect *Alternaria alternata* (*A. alternata*) in both sterile water and pear juice (an example of complex food matrix). The substrate fabrication conditions were firstly optimized to obtain the maximal SERS enhancement. SERS and Raman mapping methods were then used to scan the *A. alternata* adsorbed on the surface of the substrate, and the intrinsic and distinct SERS signals of *A. alternata* were used as the basis for detection. It was found that using *A. alternata* in sterile water as a model sample, the method was able to detect the *A. alternata* with a limit of detection (LOD) as low as 1.0×10^3 cfu/mL. Moreover, the newly developed method could also realize rapid detection of *A. alternata* in pear juice, and the

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